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L3 same centromere	1

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<u>L2</u>	L1 same plant\$ same centromere\$	1	<u>L2</u>
<u>L1</u>	recombinant near0 DNA	19076	<u>L1</u>

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L2: Entry 1 of 1

File: USPT

Dec 14, 1993

DOCUMENT-IDENTIFIER: US 5270201 A
TITLE: Artificial chromosome vector

Abstract Paragraph Left (1):

The present invention relates to a recombinant DNA molecule which contains the telomere and, optionally, the centromere of a higher eukaryote, particularly a plant, the telomere itself, the centromere itself, a method of producing a polypeptide in a recipient cell which utilizes said recombinant DNA molecule, host cells transformed with said recombinant molecule, and uses for said recombinant molecule.

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L2: Entry 1 of 1

File: USPT

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US-PAT-NO: 5270201

DOCUMENT-IDENTIFIER: US 5270201 A

TITLE: Artificial chromosome vector

DATE-ISSUED: December 14, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Richards; Eric J.	Lloyd Harbor	NY		
Ausubel; Frederick M.	Newton	MA		

US-CL-CURRENT: 435/418; 435/252.33, 435/254.2, 435/320.1, 435/325, 435/419, 536/23.1

CLAIMS:

What is claimed is:

1. A recombinant DNA construct comprising a telomere, said telomere consisting essentially of tandem repeats of the sequence

5'-CCCTAAA-3'

in sufficient quantity to provide a telomere property to a linear double-stranded DNA construct when said telomere is double-stranded and is oriented such that the C-rich 5' end of each tandem repeat is closer to the blunt end of the telomere than the A-rich 3' end of each repeat.

2. The recombinant DNA construct of claim 1, which additionally comprises a yeast centromere.

3. The recombinant construct of claim 1, which additionally comprises a yeast autonomous replicating sequence.

4. The recombinant construct of claim 1, which additionally comprises a selectable marker gene.

5. A recombinant DNA construct comprising a telomere of a higher eukaryotic organism, a yeast centromere, and a yeast autonomous replicating sequence, said telomere consisting essentially of tandem repeats of the sequence

5'-CCCTAAA-3'

in sufficient quantity to provide a telomere property to a linear double-stranded DNA construct when said telomere is double-stranded and is oriented such that the C-rich 5' end of each tandem repeat is closer to the blunt end of the telomere than the A-rich 3' end of each repeat.

6. The recombinant DNA construct of claim 5, which additionally comprises a selectable marker gene.

7. The recombinant DNA construct of any one of claims 1 or 4, which is capable of being maintained as a chromosome.

8. A plasmid comprising the recombinant DNA construct of claim 7.

9. The plasmid of claim 8, wherein said plasmid further comprises an origin of replication and a selection marker that function in bacteria.

10. The plasmid of claim 9, wherein said bacteria is *E. coli*.

11. The plasmid of claim 8, wherein said plasmid further comprises an origin of replication and a selection marker that function in yeast.

12. The plasmid of claim 11, wherein said yeast is *S. cerevisiae*.

13. The construct of claim 7, which additionally comprises a desired gene sequence.

14. The construct of claim 13, wherein said desired gene sequence is selected from the group consisting of:

- (1) a gene sequence of a hormone gene;
- (2) a gene sequence of an antibiotic resistance gene;
- (3) a gene sequence of a nitrogen fixation gene;
- (4) a gene sequence of a plant pathogen defense gene;
- (5) a gene sequence of a plant stress-induced gene;
- (6) a gene sequence of a toxin gene; and
- (7) a gene sequence of a seed storage gene.

15. The construct of claim 14, wherein said construct is capable of expressing said desired gene sequence.

16. The construct of claim 14, wherein said construct is capable of expressing said desired gene in a prokaryote.

17. The construct of claim 14, wherein said construct is capable of expressing said desired gene in a eukaryote.

18. The construct of claim 17, wherein said eukaryote is a higher eukaryote.

19. The construct of claim 18, wherein said higher eukaryote is a plant.

20. A recombinant DNA construct comprising the pAtT4 plasmid, Accession Number ATCC 67577.

21. A recombinant DNA construct comprising the sequence of FIG. 4.

22. A host cell transformed with the recombinant DNA construct of any one of claims 1 or 5.

23. The host cell of claim 22, which is a eukaryotic cell.

24. The host cell of claim 23, which is a higher eukaryotic cell.

25. The host cell of claim 24, which is a plant cell.